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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/631,927	07/31/2003	Shinichi Hara	1232-5091	9675

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EXAMINER	
ZEC, FILIP	

ART UNIT	PAPER NUMBER
3744	

DATE MAILED: 08/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/631,927	HARA, SHINICHI	
	Examiner	Art Unit	
	Filip Zec	3744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 July 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *21-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *21-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *31 July 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 7/25/2005 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 21-23 and 25-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,000,227 to Kroeker, in view of U.S. Patent 5,813,233 to Okuda et al. and U.S. Patent 6,298,669 to Maruyama et al. Kroeker discloses applicant's basic inventive concept, a cooling system provided in a vacuum atmosphere (abstract), comprising a radiational member (142, FIG. 7) spaced apart (col 2, lines 45-47) from a rear surface of a cooled optical element (162, FIG. 7), substantially as claimed with the exception of a Peltier element contacting said radiational member with a heat absorbing surface (1b, FIG. 9); a detector for detecting temperature of the optical element (52-55, FIG. 27) as input to a controller (FIG. 28) for

controlling the constant, reference temperature (col 17, lines 40-62) of the optical element at a predetermined, target value (col 18, lines 1-15); a heat transfer system contacted to a heat radiation surface of said Peltier element to flow a coolant via a circulation channel; a radiator block (3, FIG. 9) contained in the coolant channel and a shielding element (16, FIG. 8) for protection. Maruyama shows the use of a Peltier element (71, FIG. 7A) contacting a radiational member (72, FIG. 7A) with a heat absorbing surface and a heat transfer system (73, FIG. 7A) contacted to a heat radiation surface of said Peltier element to flow a coolant via a circulation channel (75, FIG. 7A) to be old in the thermoelectric refrigeration art. Okuda shows the use of a detector for detecting temperature of the optical element (52-55, FIG. 27) as input to a controller (FIG. 28) for controlling the constant, reference temperature (col 17, lines 40-62) of the optical element at a predetermined, target value (col 18, lines 1-15) and a shielding element (16, FIG. 8) for protection to be old in the thermoelectric cooling art. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made from the teaching of Maruyama and Okuda to modify the system of Kroeker, by coupling a Peltier element to the radiational member and adding heat transfer system contacted to a heat radiation surface of said Peltier element to flow a coolant via a circulation channel enabling the radiation member temperature-controlled to a target temperature by operation control (Maruyama; col 1, lines 60-65), and by using a detector, a controller and a shielding element for protection in order to update the controlling system and protect the cooled object.

4. Claims 24 and 29-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,000,227 to Kroeker, in view of U.S. Patent 5,813,233 to Okuda et al. and U.S. Patent 6,298,669 to Maruyama et al., as applied to claim 21 above, and further in view of U.S. Patent

6,098,408 to Levinson et al. Kroeker in view of Okuda and Maruyama discloses applicant's basic inventive concept, a radiation cooling system spaced apart from the cooled optical element, substantially as claimed with the exception of stating that the optical element cooled is a mirror having a light which passes through at a wavelength of 10-15 nm, said mirror being either a projection or illumination optical system and that the optical system is used for exposing an object to a pattern. Levinson shows a radially cooled mirror (col 1, line 55) having a light passing through it at a wavelength of 5-70 nm and used for exposing an object to a pattern (col 1, lines 20-22) to be old in the cooling art. Also, a mirror is an integral part of any projection or illumination optical system and this limitation bares no patentable weight on the specific cooling feature, which is claimed. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made from the teaching of Levinson to modify the system of Kroeker in view of Okuda and Maruyama, by specifying the mirror, said mirror being either a projection or illumination optical system, as a cooled element in order to lessen the error in optical temperature sensing.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent 3,212,274 to William Eidus teaches a thermoelectric condenser.

U.S. Patent 6,509,951 to Loopstra, Erik R. et al. teaches a lithographic projection apparatus having a temperature controlled heat shield.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Filip Zec whose telephone number is (571) 272-4815. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler can be reached on 571-272-4834. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CHERYL J. TYLER
PRIMARY EXAMINER

Filip Zec
Examiner
Art Unit 3744

FZ